



Lead Tile Cleaning Procedure

410.4-PROC-0056

Revision -

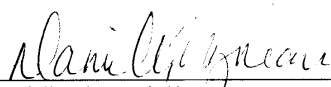
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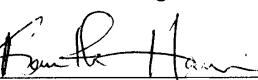



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DOCUMENT TITLE Requirements Document DOCUMENT DATE :			
ISSUE	DATE	PAGES AFFECTED	DESCRIPTION

RELEASE DATE: _____

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1 General

1.1 Introduction

The BAT instrument requires a coded aperture mask that is 4'x 8'x 1.54" in size. Approximately 52,000 lead tiles (5x5x1 mm) will be bonded to the mask in a predetermined nonrepeating random pattern covering about 50% of the panel surface.

Each tile will be cleaned, primed, and precured with a 4mm x 4mm square layer of CV10-2568. In addition, a skim coat of wet CV10-2568 will be applied to the substrate for adhering the precured tiles to the panel surface. Primer must be applied to the lead tiles and the substrate per 410.4-PROC-0057 prior to application of the CV10-2568.

1.2 Applicable Documents

GSFC-Swift-410-Spec-002	Swift Mission Assurance Requirements Document
410.4-MGMT-0005	BAT Mechanical Requirements Document
410.4-PG-8730.3.1	Swift Quality Management Plan
NHB8060.1	Flammability Odor and Offgassing Requirements
NASA/GSFC	Engineering Services Division Safety Manual, September 1990
NASA RP-1124 (Revision 4)	Outgassing Data for Selecting Spacecraft Materials
ASTM E-595-93	Test Method for Total Mass Loss and Collected Volatile Condensable Materials from Outgassing in a Vacuum Environment

1.3 Responsibilities

The BAT Mask Lead Engineer is responsible for providing authorization for the activity, technical advice, assistance during handling operations, coordination, and notification to all applicable personnel. Only trained and qualified personnel, the Lead Engineer and Lead Technician are permitted to perform the following tasks. Additional personnel will only be used if specifically authorized by the cognizant engineer.

The GSFC Code 300 Quality Assurance (QA) representative shall be responsible for monitoring the operation and verifying all steps of the procedure are signed & dated.

1.4 Safety

Emergency Actions: When an unsafe condition exists, the Mask Lead Technician will take immediate action to prevent injury to personnel or hardware.

1.5 Procedure Deviations

Deviations from this procedure shall be redlined in the official copy and will be initialed by the BAT Mechanical PDL and or designee and QA representative.

1.6 Quality Assurance

QA will monitor all operations as specified in this procedure. They shall stamp or initial to verify that all operations listed are acceptable as indicated.

1.7 Tile Cleaning Summary

The lead tiles are measured by weight into lots of ~1000 and placed in a perforated basket. Each batch is ultrasonically cleaned in acetone and allowed to air dry. The ultrasonic cleaning and air dry steps are repeated using Isopropanol. The tiles are poured into a mesh sieve for and allowed to air dry further. The tiles are poured into a pyrex pan for a 2 hr bakeout in the oven at $100^{\circ}\text{C} \pm 10^{\circ}\text{C}$. The tiles are bagged and marked with the appropriate batch number. All pertinent information must be logged into the Tile Cleaning Log.

2 Requirements

2.1 Required Equipment

Polypropylene Perforated Basket

Polyethylene Gloves

Heat Sealing Device

Calibrated Scale

ACS Grade Acetone

Sharpie Marker

Mesh Sieve*

Pyrex Dishes**

*Supplied by Contamination Control

Ultrasonic Tank

Aluminum Measuring Dishes

Large Pyrex Beakers

Tile Drying Oven

ACS Grade Isopropanol

Tile Cleaning Log

Polybags*

Glass Dishes (Cleaned per 3.1.1)

**Cleaned by Contamination Control

2.2 Required Personnel

Officially trained and designated shop personnel.

3 Procedure

3.1 Tile Cleaning

Event #	Responsible Code	Event Description	Signature and Date		NCR #	Product Disposition Completion Date
			17. Performed by	18. Inspected by		
3.1.1		Use polyethylene gloves and ACS Grade Acetone and Isopropanol during all cleaning operations.				
3.1.2		Record all pertinent information in the Tile Cleaning Log.				
3.1.3		Using a calibrated scale, weigh out approximately 1000 tiles into a clean aluminum dish. Batch Weight _____ g				
3.1.4		Place batch of ~ 1000 tiles in a perforated polypropylene basket.				
3.1.5		Ultrasonically clean tiles in basket in a bath of ACS Grade Acetone for a minimum of 15 minutes. Start Time _____ End Time _____				
3.1.6		Remove polypropylene basket and allow tiles to drip dry for a minimum of 5 minutes. Start Time _____ End Time _____				
3.1.7		Ultrasonically clean tiles in basket in a bath of ACS Grade Isopropanol for a minimum of 15 minutes. Start Time _____ End Time _____				
3.1.8		Remove polypropylene basket and allow tiles to drip dry for a minimum of 5 minutes. Start Time _____ End Time _____				
3.1.9		Transfer tiles to Mesh Sieve and allow a minimum of 5 minutes air dry. Start Time _____ End Time _____				
3.1.10		Transfer tiles to a pyrex pan. Be sure tiles are not visibly wet before placing in oven.				
3.1.11		Place pan in designated Tile Drying Oven and bake for 2 hours at 100° C +/- 10° C. Start Time _____ End Time _____				
3.1.12		Remove pans from oven and allow the tiles to cool completely to room temperature. Start Time _____ End Time _____				

Event #	Responsible Code	Event Description	Signature and Date		NCR #	Product Disposition Completion Date
			17. Performed by	18. Inspected by		
3.1.13		Carefully lift pan and pour tiles into a polybag and heat seal.				
3.1.14		Using a Sharpie, record batch identification on the polybag.				